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09/903,210	07/11/2001	Masao Yamamoto	01-412	9975

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EXAMINER

FINEMAN, LEE A

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 12/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/903,210

Applicant(s)

YAMAMOTO, MASAO

Examiner

Lee Fineman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 19-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in Paper No. 6 is acknowledged.
2. Claims 19-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.
Election was made **without** traverse in Paper No. 6.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "550" A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: In many instances (e.g. page 30, line 13, page 36, lines 3 and 8, page 58, line 7 and page 61, lines 1 and 23) "90" should be followed by --degrees--.

Appropriate correction is required.

✓ 6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

7. The abstract of the disclosure is objected to because "90" in line 20 should be followed by -degrees-- and "state" also in line 20 should be followed by --where--. Correction is required. See MPEP § 608.01(b).

Claim Objections

8. Claims 5-7, 12, and 16 objected to because of the following informalities:

✓ In claim 5, line 3 "said objective lens system" lacks antecedent basis.

✓ In claim 6, lines 3-4 "said objective lens system" lacks antecedent basis.

✓ In claim 7, line 2 "said objective lens system" lacks antecedent basis.

✓ In claim 12, line 2 "said objective lens" lacks antecedent basis and in line 4 "said liquid crystal plate" and "said selection polarizing plate" lack antecedent basis.

In claim 16, line 1 "are" should be --is--, in lines 1-2 "the image light" lacks antecedent basis, in lines 3-4 "the left eye image" and "the right eye image" lack antecedent basis, in lines 7-8, "said light shield plate" lacks antecedent basis, and in lines 8 and 10 "the left eye" and "the right eye" lack antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

10. Claims 1-6, 9-10 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Mihalca et al, U.S. Patent No. 5,964,696.

Regarding claims 1-6, Mihalca et al. discloses a device for picking up a stereoscopic image (fig. 2) comprising one image pickup element (14) to which an image light for a left eye and an image light for a right eye are guided for picking up an image for the left eye and an image for the right eye which are used as a stereoscopic image and given an appropriate visual angle (column 3, lines 26-33); a left-eye shutter means (figs. 4 and 4A, optical switch 22 on the left aperture 36 side) disposed in an optical path of the image light for the left eye for taking any one of a shield state where the image light for the left eye is shielded and a pass state where the image light for the left eye is allowed to pass; and a right-eye shutter means (figs. 4 and 4A, optical switch 22 on the right aperture 34 side) for taking any one of a shield state where the image light for the right eye is shielded and a pass state where the image light for the left eye is

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allowed to pass; wherein said left-eye shutter means and said right-eye shutter means are alternately put into the pass state to make said image pickup element alternately pick up the image light for the right eye and the image light for the left eye(column 5, line 14- column 6, line 3); one objective lens system (within endoscope 12, fig. 1) that allows the image light for the left eye and the image light for the right eye to pass (column 4, lines 2-4); one light shield plate (20, figs. 4 and 4A) having two openings (34, 36) defined therein so that one light that has passed through one of those two openings in said light shield plate becomes the image light for the left eye (68), and the other light that has passed through the other opening in said shield plate becomes the image light for the right eye (66) wherein the two openings are disposed eccentrically from the optical axis of said objective lens system by regular distances, respectively (column 4, line 64-column 5, line 10) and wherein said light shield plate is disposed in an optical path between said objective lens system and said image pickup element to shield the image light that has passed through said objective lens system (fig. 2) and wherein said light shield plate is disposed in proximity to an image sided principle point of said objective lens system (column 3, line 65-column 4, line 63).

Regarding claims 9 and 10, Mihalca et al. further discloses wherein said left-eye shutter means and said right-eye shutter means includes a polarizing plate (figs. 4 and 4A, 46) comprising two polarizing plates (54, 56) each of which polarizes the image light that has passed through one polarizing plate into the polarized light different in an orientation of a vibrating face from the image light that has passed through another polarizing plate (58, 60); and a passing light selecting means (48, 50, 52) for alternately taking a first state in which one image light which has been polarized into the polarized light is shielded and the other image light is allowed to pass

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(fig. 4), and a second state in which the other image light which has been polarized into the polarized light is shielded, and said one image light is allowed to pass (fig. 4A) wherein said passing light selecting means comprises one liquid crystal plate (48) and one selection polarizing plate (52) wherein said liquid crystal takes a non-rotation state in which the image light which has been polarized into the polarized light by the polarizing plate is allowed to pass without changing the orientation of its vibration plane, and a rotation state in which the image light which has been polarized into the polarized light by the polarizing plate is allowed to pass after its vibration plane has been rotated; and wherein said selection polarizing plate allows one of the image lights that have passed through said polarizing plate to pass and the other image light to be shielded in one state of said non-rotation state and said rotation state, and allows the one of the image lights that have passed through said liquid crystal plate to be shielded and the other image light to be pass in the other state of said non-rotation state and said rotation state (column 5, line 13-column 6, line 3).

Regarding claim 13, Mihalca et al. further discloses wherein both of said left-eye shutter means and said right-eye shutter means change over the shield state and the passing state at a time interval shorter than 1/40 seconds (column 6, lines 60-62)

11. Claims 1-6, 8-10, 12 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura, U.S. Patent Application No. 2001/0012053 A1

Regarding claims 1-6, Nakamura discloses a device for picking up a stereoscopic image (figs. 4, 5A and 5F) comprising one image pickup element (105) to which an image light for a left eye and an image light for a right eye are guided for picking up an image for the left eye and

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an image for the right eye which are used as a stereoscopic image and given an appropriate visual angle (page 5, sections [0103] and [0104]); a left-eye shutter means (figs. 8A and 8B, 124a or 124b) disposed in an optical path of the image light for the left eye for taking any one of a shield state where the image light for the left eye is shielded and a pass state where the image light for the left eye is allowed to pass; and a right-eye shutter means (figs. 8A and 8B, 124a or 124b) for taking any one of a shield state where the image light for the right eye is shielded and a pass state where the image light for the left eye is allowed to pass; wherein said left-eye shutter means and said right-eye shutter means are alternately put into the pass state to make said image pickup element alternately pick up the image light for the right eye and the image light for the left eye (page 5, section [0108]); one objective lens system (fig. 5A, 119) that allows the image light for the left eye and the image light for the right eye to pass (page 5, section [0103]); one light shield plate (fig. 5A, 123) having two openings (123a, 123b) defined therein so that one light that has passed through one of those two openings in said light shield plate becomes the image light for the left eye, and the other light that has passed through the other opening in said shield plate becomes the image light for the right eye wherein the two openings are disposed eccentrically from the optical axis of said objective lens system by regular distances, respectively (page 6, section [0111], lines 11-22) and wherein said light shield plate is disposed in an optical path between said objective lens system and said image pickup element to shield the image light that has passed through said objective lens system (fig. 6) and wherein said light shield plate is disposed in proximity to an image sided principle point of said objective lens system (page 5, section [0111], lines 11-22).

Regarding claims 8 and 16, Nakamura further discloses wherein each of said left-eye shutter means and said right-eye shutter means includes a shutter plate (figs. 10A and 10B, 175) that is disposed to be movable forward and backward in an optical path of the image light for the left eye or the image light for the right eye, through which the light does not pass; and wherein said shutter plate is disposed in each of the openings of said light shield plate (page 8, section [0134]).

Regarding claims 9 and 10, Nakamura further discloses wherein said left-eye shutter means and said right-eye shutter means includes a polarizing plate (figs. 8A and 8B, 145a) comprising two polarizing plates each of which polarizes the image light that has passed through one polarizing plate into the polarized light different in an orientation of a vibrating face from the image light that has passed through another polarizing plate (page 7, section [0128]); and a passing light selecting means (148) for alternately taking a first state in which one image light which has been polarized into the polarized light is shielded and the other image light is allowed to pass, and a second state in which the other image light which has been polarized into the polarized light is shielded, and said one image light is allowed to pass (page 7, section [0129]) wherein said passing light selecting means comprises one liquid crystal plate (148) and one selection polarizing plate (145b) wherein said liquid crystal takes a non-rotation state in which the image light which has been polarized into the polarized light by the polarizing plate is allowed to pass without changing the orientation of its vibration plane, and a rotation state in which the image light which has been polarized into the polarized light by the polarizing plate is allowed to pass after its vibration plane has been rotated; and wherein said selection polarizing plate allows one of the image lights that have passed through said polarizing plate to pass and

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the other image light to be shielded in one state of said non-rotation state and said rotation state, and allows the one of the image lights that have passed through said liquid crystal plate to be shielded and the other image light to be pass in the other state of said non-rotation state and said rotation state (page 7, sections [0128] and [0129]).

Regarding claim 12, Nakamura further discloses wherein said objective lens (119) and said light shield plate (123) are integrated with each other (fig. 5a), said image pickup element (105), said liquid crystal plate (148) and said selection polarizing plate (145b) are integrated together (fig. 5f), and said image pickup element, said liquid crystal plate and said selection polarizing plate are separatable from said objective lens and said light shield plate (page 5, section [0106]).

12. Claims 1-8 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Lia, U.S. Patent No. 5,222,477.

Regarding claims 1-7, Lia discloses a device for picking up a stereoscopic image (figs. 2 and 4) comprising one image pickup element (22) to which an image light for a left eye and an image light for a right eye are guided for picking up an image for the left eye and an image for the right eye which are used as a stereoscopic image and given an appropriate visual angle (column 3, line 60-column 4, line 19); a left-eye shutter means (30, figs. 2 and 3) disposed in an optical path of the image light for the left eye for taking any one of a shield state where the image light for the left eye is shielded and a pass state where the image light for the left eye is allowed to pass; and a right-eye shutter means (30, figs. 4 and 5) for taking any one of a shield state where the image light for the right eye is shielded and a pass state where the image light for

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the left eye is allowed to pass; wherein said left-eye shutter means and said right-eye shutter means are alternately put into the pass state to make said image pickup element alternately pick up the image light for the right eye and the image light for the left eye (column 4, lines 2-8); one objective lens system (25) that allows the image light for the left eye and the image light for the right eye to pass (column 3, lines 52-55); one light shield plate (27) having two openings (28, 29) defined therein so that one light that has passed through one of those two openings in said light shield plate becomes the image light for the left eye (figs. 4 and 5), and the other light that has passed through the other opening in said shield plate becomes the image light for the right eye (figs. 2 and 3) wherein the two openings are disposed eccentrically from the optical axis of said objective lens system by regular distances, respectively and wherein said light shield plate is disposed in an optical path between said objective lens system and said image pickup element to shield the image light that has passed through said objective lens system (figs. 2 and 4) and wherein said light shield plate is disposed in proximity to an image sided principle point of said objective lens system (column 3, lines 60-65); and wherein said objective lens system comprises one objective lens (25), and said light shield plate is disposed close to any surface of said objective lens (figs. 2 and 4).

Regarding claims 8 and 16, Lia further discloses wherein each of said left-eye shutter means and said right-eye shutter means includes a shutter plate (figs. 2 and 4, 30) that is disposed to be movable forward and backward in an optical path of the image light for the left eye or the image light for the right eye, through which the light does not pass; and wherein said shutter plate is disposed in each of the openings of said light shield plate (column 3, line 60-column 4, line 19).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mihalca et al. or Nakamura in view of Lia.

Mihalca et al. or Nakamura discloses the claimed invention except wherein the polarizing plate is disposed on each of the openings of the light shield plate and polarizes the light that has passed through the light shield plate into a polarized light. Lia teaches a light shield plate with filters disposed on each of the openings of the light shield plate (fig. 7 and column 4, lines 32-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to put polarization filters on each of the openings of the light shield plate of Mihalca et al. or Nakamura as suggested by Lia to make the system more compact.

15. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihalca et al. or Nakamura in view of Carbery, U.S. Patent No. 5,475,419.

Mihalca et al. or Nakamura discloses the claimed invention except wherein each of said left-eye shutter means and said right-eye shutter means changes over the shield state and the passing state at a time interval which is the half of a period of time during which one frame is

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displayed on a predetermined display device on which the stereoscopic image is displayed and wherein each of said left-eye shutter means and said right-eye shutter means changes over the shield state and the passing state at a time interval of $1/60$ seconds. Carbery teaches that flicker is not detectable at 30 frames per second in which each field changes at a time interval of $1/60$ seconds (column 2, lines 21-25) which is a time interval of half of a period of time during which one frame is displayed on a predetermined display device on which the stereoscopic image is displayed. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a frame speed of at least 30/second and a switching speed of at least $1/60$ seconds in the systems of Mihalca et al. or Nakamura as suggested by Carbery to prevent image flicker.

16. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihalca et al. or Nakamura in view of Carbery, as applied to claims 14 and 15 above, and further in view of Woodgate et al., U.S. Patent No. 5,917,562.

Mihalca et al. or Nakamura in view of Carbery, as applied to claims 14 and 15 above, discloses the claimed invention except for the display device comprising a display screen in which a large number of linear regions that display a part of an image are arranged in parallel into a plane, and a part of a given moving image is displayed on each of the linear regions to display the given moving image; a frame memory in which image data representative of an image for one frame of the moving image which is displayed on said display screen is recorded; a control means that receives the data representative of the moving image to be displayed on said display screen from said image pickup device, records the data in said frame memory, and

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displays the data on said display screen at a given timing to control an image displayed on said display screen; a polarizing plate that is disposed on a front surface of said display screen for polarizing the light from said display screen into a polarized light having a predetermined vibration plane, in which the linear regions are divided into two alternate groups consisting of one group that forms a first region where a part of the left-eye image transmitted to the left eye of the viewer is displayed, and the other group that forms a second region where a part of the right-eye image transmitted to the right eye of the viewer and picked up with an appropriate visual angle with respect to the left-eye image is displayed; and a polarization plane rotating means that is disposed on a front surface of said polarizing plate for changing the vibration plane of the polarized light from said first region which has passed through said polarizing plate and the vibration plane of the polarized light from said second region which has passed through said polarizing plate in different directions; wherein said control means records the image corresponding to the first frame in said frame memory in an interlaced manner while the left-eye image is drawn on one region of said first region and said second region, and the right-eye image is drawn on the other region. Woodgate et al. teaches a display device (fig. 5) comprising a display screen (4) in which a large number of linear regions that display a part of an image are arranged in parallel into a plane, and a part of a given moving image is displayed on each of the linear regions to display the given moving image (5a, 5b, column 3, line 66-column 4, line 37); a frame memory in which image data representative of an image for one frame of the moving image which is displayed on said display screen is recorded (in so far as the image data must be at least temporarily stored in memory by the control means (7) to be able to switch them); a control means (7) that receives the data representative of the moving image to be displayed on

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said display screen from said image pickup device, records the data in said frame memory, and displays the data on said display screen at a given timing to control an image displayed on said display screen (column 3, line 66-column 4, line 4); a polarizing plate (33, fig. 8) that is disposed on a front surface of said display screen for polarizing the light from said display screen into a polarized light having a predetermined vibration plane, in which the linear regions are divided into two alternate groups consisting of one group that forms a first region where a part of the left-eye image transmitted to the left eye of the viewer is displayed, and the other group that forms a second region where a part of the right-eye image transmitted to the right eye of the viewer and picked up with an appropriate visual angle with respect to the left-eye image is displayed (column 4, lines 14-37 and fig. 8); and a polarization plane rotating means (20, fig. 8) that is disposed on a front surface of said polarizing plate for changing the vibration plane of the polarized light from said first region which has passed through said polarizing plate and the vibration plane of the polarized light from said second region which has passed through said polarizing plate in different directions (fig. 8); wherein said control means records the image corresponding to the first frame in said frame memory in an interlaced manner while the left-eye image is drawn on one region of said first region and said second region, and the right-eye image is drawn on the other region (column 7, lines 5-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the display of Woodgate et al. with the systems of Mihalca et al. or Nakamura in view of Carbery to improve cross talk performance with a low cost device (Woodgate et al., column 2, line 55-column 3, line 17).

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Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi et al, U.S. Patent No. 5,720,706 that discloses a stereoscopic endoscope with control means.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (703) 305-5414. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.


LAF

December 16, 2002


MARK A. ROBINSON
PRIMARY EXAMINER